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THE CONSERVATION OF THE MAMMALS AND OTHER VANISHING ANIMALS OF THE PACIFIC

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AT the Pasadena meeting of the Pacific Division of the American Association for the Advancement of Science two years ago, the writer presented a paper on the "Scientific and Economic Problems of the Mammals and Birds of the North Pacific." In that paper attention was called to the inadequacy of our knowledge of the distribution, abundance and habits of even the most common species of marine mammals of the North Pacific. We know only approximately what the species are. There may be 44, as given in the most recent lists, or there may be more or not so many; we do not know with any certainty.

Excepting the fur-seal, our knowledge of the various species is very incomplete. We know the fur-seal fairly well, but not completely in all its aspects by any means. Much has been added in recent years to our knowledge of certain of the whales, through the investigations of Dr. Roy C. Andrews, but of others little or nothing has been learned since Scammon in 1870.

In the paper referred to, attention was called to the richness of the North Pacific as a field for scientific investigation and some of the problems were mentioned. The commercial or economic necessity for an immediate study of some of these problems was urged. At the Pan-Pacific Scientific Conference held at Honolulu in August, 1920, he again called attention to this matter and expressed the hope that some cooperative arrangement might be perfected whereby the various countries bordering on the Pacific might jointly undertake such investigations.

During the last three years, through the cooperation of the California Sea Products Company of San Francisco, a considerable amount of very interesting and useful data has been assembled regarding the whale fishery on the California coast, but we do not yet know even approximately well the life history of a single species of those great animals.

The whales are only one illustration of the incompleteness of

our knowledge of the animals of the Pacific. Even our knowledge of the fur-seal, about which more has been written than about any other animal (man excepted) in the world, is still incomplete in several very important respects. We know only a trifle about the sea lions, harbor seals, walrus, elephant seal, the porpoises and the sea otter. Much remains to be learned concerning the life history of the halibut, the herring, the tuna and the sardine, before we can formulate laws for their proper utilization and conservation. We are only now, chiefly through the painstaking investigations of Dr. Charles H. Gilbert, beginning to understand what must be done to save the salmon fishery and make it a going concern.

Most of the animals mentioned, as well as many others about which we know little, are of wide distribution and their effective study and conservation can be brought about only through international cooperation. And this brings us to a consideration of the nature of the cooperation that will be most effective, and the ways and means by which it may be brought about.

It is now desired to offer some suggestions upon this phase of the subject and to call attention to a few of the problems of most pressing moment.

In the first place, it must be realized that these problems, certainly many of them, are international in their scope, and not limited in their relations merely to two or three of the most important countries concerned; that mistake was made by the United States in the fur-seal treaties.

When the Paris Tribunal was formed in 1892, the United States and Great Britain thought they were the only countries seriously concerned. This view was no doubt based upon the fact that only their citizens were, or had been up to that time, engaged in pelagic sealing. The vital mistake made was the assumption that other countries were not likely sooner or later to go into the business.

Up to that time, it is true, no other country had seriously engaged in killing fur seals in the open sea of the North Pacific; even the Japanese had not yet done much, if any, pelagic sealing.

The Japanese government was anxious to join the United States and Great Britain in the treaty of 1892, but her advances were not encouraged. And what was the result? Japan immediately embarked with great vigor in the vastly remunerative and extremely fascinating sport of killing seals in the open sea. Not being bound by the Paris Tribunal regulations, Japan could lawfully kill seals at any time and anywhere in the ocean, even right up to the 3-mile limit around the seal islands and along the American coast. So vigorously did the Japanese carry on this business, and so defective in other respects were the regulation of the Paris

Tribunal, that the Alaska fur-seal herd steadily and rapidly decreased from 402,850 seals in 1897 to 127,745 in 1911.

A new fur-seal treaty was negotiated in 1911, the participating countries being the United States, Great Britain, Russia, and Japan. The United States and Great Britain had at last learned that the problem did not concern them alone, so Japan and Russia were permitted to come in. But who knows how soon some other countries may not be tempted to engage in pelagic sealing? In 1911, our fur-seal herd had become reduced to about 127,000 seals. Under the protection of the present treaty it has increased to more than 550,000. Very soon fur-seals will be so abundant in the North Pacific as to promise great profits to adventurous spirits who may be tempted to engage in pelagic sealing; indeed, it is thought some pelagic sealing has already been going on in the last year or two. What is to prevent them from outfitting in China, Mexico, Peru, Chile, or other countries bordering on the Pacific, sailing under the flags of those countries, and again endangering the existence of the fur-seal herd? Any of those countries has a perfect right to engage in the business if it wishes to do so. The only question they need to consider is whether it can be commercially profitable. And the rapid increase of the herd gives the answer to that question.

The present treaty became effective December 15, 1911, and runs for a period of 15 years. It seems to be fairly well observed, and the herd, although some pelagic sealing has apparently been going on, and in spite of some mismanagement on the islands, has increased rapidly. By 1926, when an opportunity will be afforded to revise the treaty, or even to withdraw from it if any of the signatory powers should wish to do so, the herd will probably contain not fewer than 1,000,000 seals.

It can be assumed, I think, that the treaty will be continued in 1926. The opportunity then afforded should not be neglected to invite all countries bordering on the Pacific and any and all others ever likely to become interested in pelagic sealing, to become parties to the treaty.

The opportunity to correct certain other defects in the present treaty should be taken. For example, under the present treaty, the aborigines on the coasts of the United States, British Columbia, Alaska, Japan and Russia, are permitted to kill seals in the open sea and along their shores. This is a very unwise provision, in that it permits the killing of female seals which has always been regarded as the most objectionable feature of pelagic sealing. The number of seals killed every spring by our Indians on the coasts of Oregon, Washington and Alaska, and by those on the coast of

British Columbia, is already great and is increasing every year. Granting this concession to the Indians or other aborigines is unwise and unnecessary and should be withdrawn.

COOPERATION IN A STUDY OF THE PROBLEMS OF THE PACIFIC

Steps have already been taken looking toward cooperation among bodies of scientific men of the countries bordering on the Pacific for the purpose of investigation and study of the scientific problems of the Pacific. The Pan-Pacific Scientific Conference which was held at Honolulu in August, 1920, devoted most of its time to discussion of these problems and to consideration of the method of attack.

The National Research Council, established in 1916 under the Congressional Charter of the National Academy of Sciences and organized with the cooperation of the national scientific and technical societies of the United States, has taken cognizance of the matter. In the Council's Division of Foreign Relations has been formed a Committee on Pacific Investigations, which has already begun consideration of the preliminary problems involved. Evidently, one of the first questions to consider is that of the nature of the cooperation that will avoid embarrassing entanglements, and which will bring results.

The National Research Council, through its Division of Foreign Relations, has already addressed letters to similar organizations or bodies of scientific men in several of the countries bordering on the Pacific, inviting them to cooperate with the Committee on Pacific Investigations in a study of the problems of the Pacific of broad or international interest. It is understood that favorable replies have been received from various countries addressed. The exchange of views expressed by the biologists, geologists, meteorologists, oceanographers and others at the Honolulu Conference last year showed clearly that the scientific men of the Pacific area are alive to the importance of the scientific problems of the Pacific and to the necessity of cooperation in their study. The replies received by The National Research Council abundantly bear out the same conclusion. The time, therefore, seems opportune, for consideration of ways and means.

METHOD OF COOPERATION

The problems to be studied are so many, so large, and so complex, that their solution can not be brought about in a day. They will require time and money. Whatever may be the character of the organization at the beginning, it is more than probable that the work must sooner or later depend upon government patronage.

It is doubtful if this could be secured until after a campaign of education has been carried on. The holding of the first Pan-Pacific Conference at Honolulu last year, under the patronage of the Pan-Pacific Union, did much to develop public and government interest in the matter. Other similar conferences that may be held perhaps in the near future, in Japan, New Zealand or Australia, and perhaps in America, would prove very effective in increasing this interest. The Pan-Pacific Union would, in all probability, be glad to act as host and provide the funds to meet all necessary expenses. These conferences would almost certainly result in the taking up of certain more or less local investigations by local scientific institutions or bodies of scientific men.

When the governments see what private and institutional agencies are doing, they will begin to realize that some of these investigations can be carried on only with government aid and international cooperation. Then the time would be ripe for effecting an organization for the study of the scientific problems of the Pacific, something like The International Council for the Exploration of the Sea.

In the meantime, it would help greatly if the various scientific agencies on the Pacific Coast of America could unite in some sort of a cooperative organization to study some of the important and pressing problems right at their doors. Among the problems that concern us here on the American coast the following may be mentioned:

(1.) The Gigantic Tortoises of the Galapagos Islands. Fifteen species of these wonderful animals are known from those islands. Some are already extinct; others are certain of very early extinction unless steps be taken very soon to protect them.

(2.) The elephant seal of Guadalupe Island should be looked after at once. It may already be too late.

(3.) The Heermann gull and other sea bird breeding rookeries on islands in the Gulf of California. The California Academy of Sciences expedition to those islands this year found eggers from La Paz, Guaymas and other places at the islands gathering the eggs as fast as they were laid and taking them for food. Only a few years of such practice will prove fatal to the breeding rookeries of these interesting birds.

(4.) The sea turtles of the Gulf of California and the west coast of Lower California are in great danger of extermination.

(5.) The sea lions and harbor seals from the Gulf of California to Bering Straits need careful study. We do not yet know sufficiently well their relation to the fisheries.

(6.) The sea otter, now nearly extinct, should receive immediate attention.

(7.) The whales of the Pacific supply one of the most important and urgent fields for investigation.

(8.) The salmon, halibut and herring of our northern coast present a number of problems of mutual interest to the United States and British Columbia.

(9.) The tuna and other migratory fishes of the southern California coast.

(10.) The walrus of the North Pacific is being rapidly and ruthlessly destroyed.

Each and all of these present problems require for their investigation and solution the cooperation of two or more American countries.

There are on the Pacific Coast of America more than a score of scientific and educational institutions as well as numerous commercial and social organizations, and hundreds of scientific men that should be interested in the study and conservation of these animals.

It ought not to be difficult to bring about some sort of an organization of all, or at least a considerable proportion of these various units to work unitedly for the conservation of these vanishing natural resources. Such an organization, working through committees, would carry great weight with the several governments concerned and should in time be able to accomplish important results.

It would seem that this is an opportune time for taking the initial steps for bringing about the cooperation necessary for a study of these problems. With this object in view the following resolution has been offered:

Whereas, Our knowledge of the habits, distribution, and abundance of the marine mammals, certain species of food fishes and other interesting and important animals occurring on the Pacific Coast of America, is not adequate as a basis for the formulation of laws and regulations for their conservation and proper utilization, and

Whereas, There is reason to believe that several of these species will in the near future become extinct unless measures are promptly taken for their preservation, and

Whereas, The problems involved are such as concern the several countries of America bordering on the Pacific, now therefore be it

Resolved, That a committee of five, representing the Pacific Division, American Association for the Advancement of Science, be appointed by the president to take up with the committee on Pacific investigations of the Division of Foreign Relations of The National Research Council, the question of effecting an organization of the institutions and biologists of the American countries bordering on the Pacific for the purpose of formulating and carrying out a comprehensive plan for the scientific study of the mammals, birds, fishes,

reptiles, and other marine animals of the Pacific coast of America now threatened with extinction.

Note.—The above resolution was unanimously adopted by the Pacific Division of the American Association for the Advancement of Science at its meeting at Berkeley, California, August 4, 1921. President George E. Hale at once appointed the following as members of the Committee:

Mr. Norman B. Scofield, of the California Fish and Game Commission;
Professor Edwin C. Starks, of Stanford University;
Captain W. C. Crandall, of the Scripps Institution for Biological Research;
Dr. Walter P. Taylor, of the U. S. Bureau of Biological Survey;
Dr. Barton Warren Evermann, of the California Academy of Sciences, as chairman.

Dr. Hale has recently authorized the enlargement of the committee and the following have been added:

The committee has been organized and is now formulating the problems to be taken up and the method of procedure. It is believed that it will be able to accomplish much for the conservation and proper utilization of the marine life of the Pacific.

Mr. W. E. Allen, Scripps Institution for Biological Research, La Jolla, Calif.;

A. W. Anthony, Museum San Diego Society of Natural History, San Diego, Calif.;

Professor William A. Bryan, Museum of History, Science and Art, Los Angeles, Calif.;

Dr. Harold C. Bryant, Museum of Vertebrate Zoology, Berkeley, Calif.;

Professor John N. Cobb, College of Fisheries, University of Washington, Seattle, Wash.;

Dr. C. McLean Fraser, University of British Columbia, Vancouver, B. C.;

Dr. G. Dallas Hanna, California Academy of Sciences, San Francisco, Calif., Secretary;

Dr. Harold Heath, Stanford University, Calif.;

Dr. William E. Ritter, Scripps Institution for Biological Research, La Jolla, Calif.;

Mr. Alvin Seale, Steinhart Aquarium, California Academy of Sciences, San Francisco, Calif.;

Dr. F. B. Sumner, Scripps Institution for Biological Research, La Jolla, Calif.;

Mr. Will F. Thompson, California State Fish and Game Commission, San Pedro, Calif.